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families of plants named in the literature. This is in addition to the general index for the volume as a whole.—R. B. WYLIE.

Chemistry of vegetable cell

A valuable service has been rendered to students of plant physiology by GRAFE,² who has prepared a textbook dealing with the biophysics and biochemistry of the processes of cell life in plants. The work was ready for publication when the war broke out, and has been delayed almost eight years by the conditions in Europe. This does not mean that the text is already old, for the delay has permitted a revision since the war, and much new material has been incorporated, particularly that which has been the result of discoveries in the laboratories of Europe. Any failure to note foreign results is excused by GRAFE on the grounds of the great difficulty experienced in keeping in touch with the scientific production of other nations.

The subject is presented under five main headings: the physicochemical laws of cell phenomena; light and heat as energy factors; the cell wall; the protoplasm; and dynamic chemistry. The first two sections occupy about a fourth of the text, and survey the problems of diffusion and osmosis, colloidal state, imbibition, adsorption, electrolytic dissociation, energy transformations, and catalysis. The third section is the briefest one, and deals with the structure, composition, and chemical transformations and modifications which occur in the walls of cells during development and maturation.

The section on protoplasm considers its colloidal structure, chemical constitution, the enzymes, toxins, precipitins, and pigments of the cell, particularly the chlorophyll and anthocyanin pigments. The final section is the longest and most important one, and considers the chemical transformations of cell activity. The author reverses the usual order of presentation by considering the utilization of energy and the respiratory processes first, then a brief consideration of stimulus and response, closing with the constructive energy-storing processes.

The book is intended as a general text for students, and the author has written in a style that is commendable for its clarity and directness. The literature list at the end of the volume occupies twenty double column pages, and the total number of references is nearly a thousand. Some of these references are not considered in the text of the volume, but are included for those who desire to orient themselves with reference to the literature on cell chemistry.—CHAS. A. SHULL.

Poisonous plants

A textbook dealing with the poisonous plants and weed seeds of Canada and the Northern United States has been prepared by THOMSON and SIFTON.³

² GRAFE, VICTOR, *Chemie der Pflanzenzelle*. 8vo. pp. viii+420. *figs.* 32. Berlin: Borntraeger. 1922.

³ THOMSON, R. B., and SIFTON, H. B., *A guide to the poisonous plants and weed seeds of Canada and the northern United States*. 8vo. pp. 169. *figs.* 40. University of Toronto Press. 1922.